Name: _____ **Date:** _____

Answer Key: Feel the Heartbeat: A 6th Grade Quest into Exercise Science

Students analyze how their internal systems collaborate and adapt to physical challenges during this middle school formative assessment.

---

1. Which of the following is considered an 'acute response' rather than a 'chronic adaptation' to physical activity?

Answer: B) An immediate increase in sweat production during a game

Acute responses happen instantly during the activity, like sweating to cool the body, whereas the other options describe long-term changes (adaptations).

2. When you engage in a high-intensity activity like a 50-meter dash, your body primarily uses the _____ energy system for a quick burst of power.

Answer: B) Phosphagen (ATP-CP)

The Phosphagen system provides immediate energy for very short, explosive movements lasting about 10 seconds.

3. True or False: Hypertrophy refers to the decrease in muscle fiber size due to a lack of regular physical activity.

Answer: B) False

Hypertrophy is the increase in muscle size; the decrease in muscle size is known as atrophy.

4. During a long-distance hike, why does your breathing rate stay elevated for the entire duration?

Answer: A) To remove carbon dioxide and deliver oxygen for aerobic metabolism

The respiratory system must work harder to provide constant oxygen to the muscles and exhaust the waste product, carbon dioxide.

5. The process where the body repairs _____ in muscle fibers after a workout is what eventually leads to increased strength.

Answer: B) Micro-tears

Name: _____ **Date:** _____

Weight-bearing exercise causes tiny, microscopic tears in muscle tissue, which the body repairs to be stronger than before.

6. True or False: Hemoglobin is the protein in red blood cells responsible for carrying oxygen to your working muscles during exercise.

Answer: A) True

Hemoglobin binds with oxygen in the lungs and transports it through the bloodstream to the tissues that need it during activity.

7. If an athlete has a very low resting heart rate (bradycardia), it is often a sign of:

Answer: C) An efficient heart that pumps more blood per beat

Chronic cardiovascular training makes the heart muscle stronger, allowing it to pump a larger volume of blood (stroke volume) with fewer beats.

8. The 'Cool-Down' phase of a workout helps prevent _____ by keeping blood circulating instead of allowing it to stay in the limbs.

Answer: A) Blood pooling

Stopping abruptly can cause blood to pool in the legs; a gradual cool-down helps the circulatory system return to a resting state safely.

9. True or False: The Anaerobic Glycolytic system requires a high amount of oxygen to produce energy for long-distance swimming.

Answer: B) False

The term 'anaerobic' specifically means 'without oxygen.' This system provides energy for intense bursts, not long-duration activities.

10. Which body system is responsible for sending the signals that tell your skeletal muscles to contract during a soccer match?

Answer: C) Nervous System

The nervous system sends electrical impulses via motor neurons to trigger muscle contractions.